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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,574	11/30/2001	Shigeki Tomishima	57454-309	3797

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McDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

MANDALA, VICTOR A

ART UNIT PAPER NUMBER

2826

DATE MAILED: 04/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/996 574

Applicant(s)

TOMISHIMA SHIGEKI

Examiner

Victor A Mandala Jr

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(d).

Status

- 1) ☐ Responsive to communication(s) filed on 24 January 2003
- 2a) ☐ This action is **FINAL** 2b) ☐ This action is non-final
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 9-12 is/are rejected.
- 7) ☐ Claim(s) 5-7 is/are objected to
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement

Application Papers

- 9) ☐ The specification is objected to by the Examiner
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f)
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1 ☐ Certified copies of the priority documents have been received
- 2 ☐ Certified copies of the priority documents have been received in Application No. _____
- 3 ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a))
- * See the attached detailed Office action for a list of the certified copies not received
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
- a) ☐ The translation of the foreign language provisional application has been received
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other

DETAILED ACTION

Response to Amendment

1. The Applicant has amended claim 1 to read around the 35 U.S.C 112 2nd paragraph rejection in Paper No. 9. The Examiner has considered the Applicant's amendment and finds it to create a new scope and retracts the 35 U.S.C 112 2nd paragraph rejection on claim 1. Claims 1-11 will be further examined.

2. The Applicant traverses the 35 U.S.C 102 (e) rejection over Kawasaki U.S. Patent No. 6,240,006 in Paper No. 9. The examiner has considered the Applicant's arguments and finds them to be persuasive. Kawasaki teaches all of the elements except for the main word line being located laterally above the subword line and being connected together by a shunt wire. Kawasaki teaches the subword line being laterally above the main word line and being connected by a shunt wire. Examiner retracts the 35 U.S.C 102 (e) rejection over Kawasaki U.S. Patent No. 6,240,006 and claims 1-11 will be further examined.

3. The Applicant traverses the drawing objection in Paper No. 9. The Applicant has pointed out in detail where the objected material to the drawings can be found in Figure 15. The Examiner has considered the Applicant's response and withdraws the drawing objection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the metal interconnection line". There is insufficient antecedent basis for this limitation in the claim. The examiner is assuming the metal interconnection line is the shunting interconnection line as taught in claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4, and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,903,492 Takashima et al.

5. Referring to claim 1, a semiconductor memory device comprising: a plurality of memory cells, (Col. 4 Lines 63-65), arranged in rows and columns; a plurality of sub word lines, (Figure 145 Examiner's Label #1), provided corresponding to the respective memory cell rows, each having memory cells on a corresponding row connected thereto; a plurality of main word lines, (Figure 145 Examiner's Label #2), each provided corresponding to a prescribed number of sub

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word lines in said plurality of sub word lines, (Figure 145 Examiner's Label #1), and disposed in a first conductive layer, (Figure 145 Examiner's Label #5), for transmitting a row select signal; a plurality of shunting interconnection lines, (Figure 145 Examiner's Label #4), provided corresponding to the respective sub word lines, (Figure 145 Examiner's Label #1), in a second conductive layer, (Figure 145 Examiner's Label #3), formed under said first conductive layer, (Figure 145 Examiner's Label #5), each shunting interconnection line, (Figure 145 Examiner's Label #4), for electrically connecting to a corresponding sub word line, (Figure 145 Examiner's Label #1), at a prescribed interval and allowing signal transmission between said each and said corresponding sub word line, (Figure 145 Examiner's Label #1); and a plurality of sub word drivers, (Figure 145 Examiner's Label #6), provided corresponding to the sub word lines, (Figure 145 Examiner's Label #1), each for driving a corresponding sub word line, (Figure 145 Examiner's Label #1), and a corresponding shunting interconnection line, (Figure 145 Examiner's Label #4), into a selected state according to at least a row select signal on a corresponding main word line, (Figure 145 Examiner's Label #2).

6. Referring to claim 2, a semiconductor memory device, wherein said first conductive layer is a third level metal interconnection layer, (Figure 145 Examiner's Label #5), and said second conductive layer is a first level metal interconnection layer, (Figure 145 Examiner's Label #3). It is inherent that the prior art teaches this claim because the claim does not teach any geometric location of the layers, which allows the prior art to teach the same as the claimed matter.

7. Referring to claim 4, a semiconductor memory device, further comprising an intermediate voltage transmission line, (Figure 148A #1), formed in a third conductive layer

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different from the first, (Figure 148A #2), and second conductive layers, (Figure 148A #3), for transmitting an intermediate voltage at a prescribed voltage level.

8. Referring to claim 9, a semiconductor memory device, further comprising a power supply line, (Figure 102 PL), disposed in an interconnection layer different from said first conductive layer, (Figure 102 WL), over a memory cell array, (Col. 4 Lines 63-65), in which said plurality of memory cells are arranged, for transmitting a power supply voltage.

9. Referring to claim 10, a semiconductor memory device, wherein said semiconductor memory device is an embedded memory, (Figure 23 #82), integrated with a logic circuit, (Figure 23 #81), on a common semiconductor substrate.

10. Referring to claim 11, a semiconductor memory device, wherein the metal interconnection line is a copper interconnection line, (Figure 145 Examiner's Label #4 & Col. 13 Line 11).

11. Referring to claim 12, a semiconductor memory device, wherein said plurality of shunting interconnecting lines, (Figure 145 Examiner's Label #4), are each electrically connected to the corresponding sub word line, (Figure 145 Examiner's Label #1), through contacts, (Figure 145 Examiner's Label #8), formed at said prescribed interval.

Allowable Subject Matter

12. Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A Mandala Jr. whose telephone number is (703) 308-6560. The examiner can normally be reached on Monday through Thursday from 8am till 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

VAMJ

April 4, 2003

